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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,464	11/14/2001	Yasushige Nakamura	011523	6989

23850 7590 03/18/2003

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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,464

Applicant(s)

NAKAMURA ET AL.

Examiner

Christopher D RoDee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10-13, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-5 and 10-18 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the search of any one group would require the search of the other group, and, consequently, no burden is placed on the Office. This is not found persuasive because the search for the toner of Group I requires little or no search of the image forming method. Art pertinent to the toner is pertinent regardless of the method in which the toner is used. The search of the method requires a minimal search of the toner, but art pertinent to the toner would not *de facto* preclude patentability of the method. The same toner can be used in different methods, including non-electrophotographic methods. Because the searches are not coextensive and differ considerably there is a burden placed on the Office should both inventions be examined in a single application.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

✓ ✓
Claims 12 and 16 are objected to because of the following informalities: claim 12 states that the ester component is represented by the following formula (VIII) but the formula is actually denoted (XIII). Appropriate correction is required. This claim also has a misplaced period as the period must be present after the formula. Correction is required. Claim 16 is objected to because there is no clear antecedent basis for "the" polypropylene resin. It appears that this should be "a" polypropylene resin.

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims are indefinite because it is unclear how the compound of the formula (I) is a resin (or a "polymer": the terms are seen as synonymous). The noted ester is not a resin because it does not have a repeating unit. It can be formed by the reaction of one multivalent alcohol and four acids. Such a compound is not normally considered to be a resin giving the term resin its normal and customary meaning. It appears that the term "component" would be more accurate noting instant claim 10. Suitable correction or clarification is requested.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-13, 16, and 18 are rejected under 35 U.S.C. 102(a) and/or (b) as being anticipated by WO 99/23534 considered with Nakanishi *et al.* in US Patent 6,326,115.

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Nakanishi is the US national stage patent of the WO document. The content of the WO document and Nakanishi are believed to be identical because of this relationship. The English language disclosure of Nakanishi is therefore believed to be the same as the Japanese language disclosure in the WO document. Nakanishi will be discussed in this rejection but that discussion is equally applicable to the WO document.

Nakanishi discloses a toner comprising a binder resin and a colorant (Abstract). The binder resin of the toner is a polyester derived from a polyol and a carboxylic acid. This polyester may be further modified to contain a urea bond or a urethane bond (col. 2, l. 54-58). In Example II-9 an isocyanate-group containing prepolymer ($\alpha 4$) (col. 28, l. 30-37), a "dead" polymer (~~3~~⁴) trimethylolpropane tribehenate (meets the requirements of formula (XI)), carbon black colorant, and solvent were placed in a beaker and reacted. The prepolymer ($\alpha 4$) appears to be a polyester prepolymer because of the reaction of ethyleneoxide adduct of bisphenol A, isophthalic acid, and trimellitic acid. These components also appear to give chloroform insoluble to the polyester noting the same reactants are disclosed for this purposed in the specification (p. 10, l. 34 - p. 11, l. 3). Reaction of the prepolymer ($\alpha 4$) having isocyanate groups with trimethylolpropane tribehenate appears to result in a urethane bond-containing polyester as the toner binder resin (III) (col. 2, l. 54-58). The toner contains this polyester resin as the sole binder resin so it is present in an amount of 100% of the polyester resin (see pending claim 18). The reference discloses the use of polypropylene wax in the toner (col. 9, l. 62) with the amount of 3 weight % specifically disclosed (col. 10, l. 25). In the instant claims the term "resin" is considered to be synonymous with "polymer". Polypropylene is clearly a polymer and, thus, meets the requirements of a resin.

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This rejection is applied in the combination and alternative of 35 U.S.C. 102(a) and/or (b) because there is no copy and no certified translation of the international application (PCT/JP/01678) to show § 120 priority. See 35 USC 365(c) and MPEP 1895.01.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/23534 considered with Nakanishi *et al.* in US Patent 6,326,115, in view of Gruber *et al.* in US Patent 4,578,338, still further in view of Tomono *et al.* in US Patent 4,997,739.

The WO document was discussed above based on the corresponding English language disclosure in Nakanishi. Additionally, this document states that waxes may be added to the toner (col. 9, l. 57 - col. 10, l. 26; col. 16, l. 1-3). Specifically mentioned waxes include polypropylenes and pentaerythritol tetrabehenate (col. 9, l. 62; col. 10, l. 1). The wax is present in a preferred amount of from 3 to 30 weight %. This combination rejection is applied against claim 16 in the event the reference's disclosure does not meet the requirements of § 102.

The reference does not disclose the number average molecular weight of the polypropylene (claim 17) or the combination of the polypropylene and pentaerythritol tetrabehenate (claims 1-3).

Gruber discloses that improved developing and fixing is obtained when a wax having a molecular weight of from about 500 to 20,000 is added to a toner having a colorant and a binder

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resin (Abstract). Useful binder resins include polyesters and polyurethanes (col. 3, l. 54 & 55). The wax is added in an amount of from about 2 to about 20 weight percent (col. 5, l. 20-25). The reference discloses commercially available polypropylenes as having a molecular weight of from 4000 to 6000 such as Viscol 550P (col. 5, l. 1-19). The Gruber reference does not specify the basis of the molecular weight measurement (i.e., number-average).

Tomono discloses a polypropylene wax for addition to a toner such as Viscol 550P (Example 1). This reference states that the preferred molecular weight range of the polypropylene is based on a number-average measurement (patent claim 1), such as range of from 2000 to 6000. The wax gives improved fixing by reducing offset.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a polypropylene to the toner of the WO document in an amount of about 3 weight percent because the WO document suggests this wax and this amount of inclusion while the supporting references teach that polypropylene wax is an effective component added to a toner for similar purposes and in similar amounts. The artisan would also have found it obvious to use the polypropylene at a number-average molecular weight of 6000 because the primary reference suggests polypropylene as a release agent for fixing, Gruber teaches that polypropylenes with molecular weights of from 4000 to 6000 are effective toner additives to improve fixing, and Tomono discloses that polypropylenes with number-average molecular weights of from 2000 to 6000 are effective offset-preventing agents during fixing. Given the cumulative teachings of the references the artisan would have found it obvious to use the polypropylene in amounts of about 2 or 3 weight percent because these amounts are specifically disclosed by the references for the polypropylene.

With respect to claims 1-3, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the mixture of pentaerythritol tetrabenenate and a

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polypropylene wax because the reference discloses each of these components as effective in the invention for their stated purpose and it is *prima facie* obvious to use a mixture of the exemplified waxes because each is taught by the reference to be effective for the same purpose. "It is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 205 USPQ 1069, 1072 (CCPA 1980).

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gambayashi *et al.* in US Patent 6,335,139.

Gambayashi discloses a toner having a polyester binder resin, a colorant, and a releasing agent (Abstract). The polyester is preferably a mixture of a linear polyester and a crosslinked polyester (col. 7, l. 35-45). The release agent of the invention includes polypropylene (col. 10, l. 30) and Wax 4, the latter meeting the requirements of the ester compounds given by the formulas specified in the claims. Examples 7 and 20 use Wax 4 and Examples 9 and 10 use a polypropylene wax.

Specific crosslinked polyesters include those having reactants of propoxylated bisphenol adducts, terephthalic acid, isophthalic acid, and either trimethylolpropane or trimellitic acid as crosslinking components (see col. 22, l. 54 - col. 24, l. 9). Because of the crosslinking components the artisan would expect some inherent chloroform insoluble components in the crosslinked polyester. Also note the similar monomers disclosed for preparation of a polyester with chloroform insolubles beginning at page 10, line 30. The similar polyester components would be expected to give a polyester with the same properties.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the mixture of Wax 4 and a polypropylene wax with the mixture of a linear polyester and a crosslinked polyester as the binder resin because the reference discloses each of these components as effective in the invention for their stated purpose and, with respect to using a mixture of waxes, it is *prima facie* obvious to use a mixture of the exemplified waxes because each is taught by the reference to be effective for the same purpose. See *In re Kerkhoven*, 205 USPQ 1069, 1072 (CCPA 1980).

This rejection is applied because there is no copy and no certified translation of the international application (PCT/JP/01678) to show § 120 priority. See 35 USC 365(c) and MPEP 1895.01.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gambayashi *et al.* in US Patent 6,335,139 as applied to claims 1 and 2 above, and further in view of Gruber *et al.* in US Patent 4,578,338, still further in view of Tomono *et al.* in US Patent 4,997,739.

Gambayashi was discussed above. The reference does not disclose the number-average molecular weight of the polypropylene.

Gruber and Tomono are relied upon for those same features as discussed above.

It would have been obvious to one having ordinary skill in the art to use the polypropylene in Gambasyahi at a number-average molecular weight of 6000 because the primary reference suggests polypropylene as a wax release agent for fixing, Gruber teaches that polypropylenes with molecular weights of from 4000 to 6000 are effective toner additives to improve fixing, and Tomono discloses that polypropylenes with number-average molecular weights of from 2000 to 6000 are effective offset-preventing agents during fixing.

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This rejection is applicable because there is no copy and no certified translation of the international application (PCT/JP/01678) to show § 120 priority. See 35 USC 365(c) and MPEP 1895.01.

Allowable Subject Matter

Claims 14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4 and 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
March 13, 2003


CHRISTOPHER RODEE
PRIMARY EXAMINER